

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

WHAT IS CLAIMED IS:

1. A system for recovery of a database from dump files placed in a correct sequential order in a created Main Directory comprising:

5 (a) means to establish various sets of dump files in a first storage means;

(b) means to create a Main Directory means of said sets of dump files in their correct sequential order for restoration of said database;

10 (c) means to access said Main Directory means to restore said database by using said sets of dump files.

2. The system of claim 1 wherein said means (a) to establish various sets of dump files includes:

5 (a1) means to access files from said database to develop (i) a FULL Dump file, (ii) an ACCUMULATED Dump file, and (ii) an INCREMENTAL Dump file.

3. The system of claim 1 wherein said means (b) to create a Main Directory means includes:

5 (b1) means using a Dump Directory Library means and Data Management Utility program means to log dump file information in said Main Directory means in the proper sequential order of FULL Dump, ACCUMULATED Dump, and INCREMENTAL Dump.

4. The system of claim 3 wherein said means (c) to access and restore includes:

5 (c1) means to initiate a recovery operation wherein said DMUTILITY program means activates said Dump Directory Library means to access the list of dumps in said Main Directory means in order to send the list of dumps in their correct sequential order for said DMUTILITY program means to then utilize a System DMRECOVERY program for re-establishing
10 said database.

5. A system for reducing recovery time in a server-database network comprising:

5 (a) data storage means (23) for providing disk means (23d) for holding database files available for read-write access by a server means (20);

10 (b) means (DMUTILITY 21) to initiate and for operating with said disk means (23d) to create special sets of backup dump files on a tape storage means (10T);

(c) said tape storage means (10T) for holding said special sets of backup dump files;

15 (d) means (DumpDir Library 22) for creating a Main Directory (10M) in a correct sequential order and which has a log of the special sets of backup dump files from said tape means (10T);

20 (e) recovery means (21,22,30) for placing said special sets of backup dump files into said disk means (23d) to establish an updated and operable database.

6. The system of claim 5 wherein said means (d) (DumpDir Library 22) additionally creates a Disk Directory (32) which provides detailed disk sub directories (24, 25, 26, 27, 28) of said dump files for
5 each dump logged in said Main Directory (10M).

7. The system of claim 6 wherein said recovery means (21,22,30) utilizes said sub-directories (24, 25, 26, 27, 28) for restoring updated data files in said disk means (23d).

8. The system of claim 5 wherein said means (b) to initiate and create special sets of backup dump files includes:

- (b1) creating a FULL dump file D1 (16);
- 5 (b2) creating a set of ACCUMULATED dump files 15, 18 (A1, A2);
- (b3) creating a set of INCREMENTAL dump files 19, 17 (I1, I2).

9. The system of claim 6 wherein said disk sub-directories of each dump logged in said Main Directory (10M) include:

(i) a Full Dump 24 (D1D);

5

(ii) ACCUMULATED dumps A1D (25) and
A2D (26);

(iii) INCREMENTAL dumps I1D (27) and
I2D (28).

10. The system of claim 6 wherein said recovery means (e) includes:

(e1) SYSTEM RECOVERY program means (30) including:

5 (e1a) said DUMP DIR Library means (22) for accessing said sets of dump files from said Main Directory (10M) and said Disk Directories (32) for conveyance to said recovery means (30);

10 (e1b) said means (21) (DMUTILITY) for conveying said sets of dump files from said Disk Directories (24, 25, 26, 27, 28) to said recovery means (30);

15 (e1c) means (30) for transporting said dump files to said recovery disk (23d) to provide an updated database.

11. The system of Claim 9 wherein said dumps (i), (ii), and (iii) are placed in the correct sequential order so that the said recovery means (30) will automatically restore said database in the correct sequential order onto disk means (23d).

12. The system of claim 11 wherein said correct sequential order operates such that the most-recently created dump file is the first to be restored, then sequentially the next more recently dump file and so on
5 until the last created dump file (earliest in time) has been restored.

13. The system of claim 11 wherein said correct sequential order of any dump recovery operates by accessing the sequence from the last item to the first item in the dump.

14. A method for recovery of a database by building a recovery backup disk with correct data in the correct sequence of order from dumps which have been organized in a Main Directory, comprising the steps of:

- 5 (a) developing a file of accumulated backups
dump a file of incremental backups and dump a
file of full backup dumps;
- (b) specifying that said full dump file must
10 be the first to be selected for delivery to the
recovery backup disk;
- (c) specifying that said accumulated dump file
be next selected for delivery to the recovery
backup disk;
- (d) specifying that said incremental dump file
15 be next selected for delivery to the recovery
backup disk.

15. The method of claim 14 wherein each file in steps (a), (b), (c) and (d) be read in the order that they were created time-wise, i.e., from the first created in time to the last created in time.

16. In a network wherein a server means utilizes a tape storage means to develop a full dump, an accumulated dump, and an incremental dump from a data disk of a database while using a DMUtility program and
5 DumpDirectory Library to create a Main Directory file and Disk Directories, and wherein a Data Management Recovery program means operates to update and rebuild the database on said data disk, a method to recover dump data in performing a Recovery From The Most Current Full Backup
10 situation when a Dump Stamp option is enabled comprising the steps of:

- (a) initiating of said DM Dump Directory Library means via a DMUtility Program in order to read the Main Directory file;
- 15 (b) reading said Main Directory file from the last (in time) dump entry up to the first dump entry;
- (c) searching the array in said Main Directory file until a full dump is found;
- 20 (d) reading the dump directory of the full dump found;
- (e) sending the information of said dump directory of step (d) to said DMUtility program;
- 25 (f) rebuilding a backup disk with the information of step (e).

17. A method for database recovery to a recovery disk of a database using the most current files of incremental and accumulated backup files comprising the steps of:

- 5 (a) initiating a DM Dump Directory Library via a DM Utility program to read a Main Directory file;
- (b) reading said Main Directory from the last (in time) dump entry up to the first dump entry;
- 10 (c) searching the array in said Main Directory until the last (in time) full dump is found;
- (d) reading said Dump Directory Library of the full dump found;
- 15 (e) sending the information of said Dump Directory Library of step (d) to said DMUtility program;
- (f) searching the array in said Main Directory until the last (in time) accumulated dump that was created after the last (in time) full dump is found;
- 20 (g) reading said Dump Directory Library of the accumulated dump found;
- (h) sending the information of step (g) to said DMUtility program;
- 25 (i) searching the array in said Main Directory until the first (in time) incremental dump that was created after the last (in time) accumulated dump is found;

- 30 (j) reading said Dump Directory Library of the
 incremental dump found;
- (k) sending the information of step (j) to
 said DMUtility program;
- (l) rebuilding said database with the
35 information of steps (e), (h) and (k).

18. A method for recovery of a database using the most current accumulated dump which holds all record files modified since the last full backup was performed, comprising the steps of:

- 5 (a) initiating of said DM Dump Directory Library via a DM Utility Program in order to read a Main Directory file;
- (b) reading said Main Directory file from the last (in time) dump entry up to the first dump entry;
- 10 (c) searching the array in said Main Directory file until the last (in time) full dump is found;
- (d) reading the dump directory of the full dump found;
- 15 (e) sending the information of said dump directory of step (d) to said DMUtility program;
- (f) searching the array in said Main Directory file until the last (in time) accumulated dump that was created after the last (in time) full dump is found;
- 20 (g) reading the dump directory of the accumulated dump found;
- 25 (h) sending the information of step (g) to said DMUtility program;
- (i) rebuilding said database with the information of steps (e) and (h).